**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Grade 7: HEAT & TEMPERATURE QUIZ**

**MULTIPLE CHOICE: ( /19)**

Please circle the letter that corresponds to the correct statement: ( /5 marks)

1. Another important idea about temperature and the particle theory is that the motion of particles increases when the temperature increases. Which statement below is also correct?

A. as the motion of particles decreases the temperature remains the same

B. as the temperature decreases the motion of the particles also increases

C. as the motion of the particles decreases the temperature decreases

D. as the temperature increases the motion of the particles decreases

2. Which of the following energy transfers would be correct?

A. thermal energy in a hot drink is transferred to cold hands

B. thermal energy is transferred from a room to a heater so it can be heated

C. an ice cube loses thermal energy when it melts in hot lemonade

D. thermal energy is lost by a match when it is lit

3. Some students performed an experiment testing the affect of heat on different liquids. Which of the following variables would have been the **manipulated variable**.

A. the amount of heat used

B. the size and type of glass tubing each liquid would rise

C. the different types of liquids

D. the different levels each of the liquids reached in the glass tubing

4. Radiation is the transfer of energy without any movement of matter. This type of energy transfer is called A. radiative transduction

B. radioactive transfer

C. electrospectrum radiation

D. electromagnetic radiation

5. A balloon filled with helium was put into a freezer to determine what the effect the lowering of the temperature would have on a gas. The **responding variable** in this experiment was the ...

A. the color of the bottle and balloon



B. the volume of the balloon before and after

C. the temperature variation of the freezer

D. the amount of time needed to change the balloon

6. When heated particles become less dense they rise, with the colder, more dense particles rushing in to take their place. This type of thermal energy transfer creates a ...

A. conduction current

B. convection current

C. radiative pathway

D. concurrent current

7. One of the most sensitive substances to heat was used in early thermometers, until it was found that it was highly toxic. This substance is ...

A. mercury

B. alcohol

C. air

D. water

8. One of the key characteristics of conduction is that heat transfers in only one direction – from areas of ...

A. greater kinetic energy to areas of less kinetic energy

B. less kinetic energy to areas of greater kinetic energy

C. greater potential energy to areas of less potential energy

D. less potential energy to areas of greater potential energy

9. Students did an experiment with four pieces of metal with a slab of butter placed on the end of each. They placed them in a beaker of hot water and timed how long it took for the butter to melt enough to slide down the metal and enter the water. Each metal showed a different time. The fastest time was recorded on the copper metal. Which of the following variables is the responding variable?

A. The temperature of the water

B. The length of the metal

C. The time it took for the butter to melt

D. The different types of metal used

10. Plastic, cork and wood are materials that do not allow an easy transfer of heat. They reduce the amount of heat that can transfer from a hot object to a colder object. They are called ...

A. conductors

B. insulators

C. energizers

D. thermals

**TRUE OR FALSE:**

Please circle whether the statement is True or False: ( /2.5 marks)

11. When electromagnetic waves come in contact with an object the waves transfer the heat to that object (T / F)

12. Conductors minimize heat transfer (T / F)

13. Convection is a form of heat transfer that happens in gases, liquids, and solids (T / F)

14. As a gas or liquid warms and rises, cools and falls, it creates a convection current (T / F)

15. The direction of heat transfer is from colder objects to hotter objects (T / F)

**MATCH-UP:**

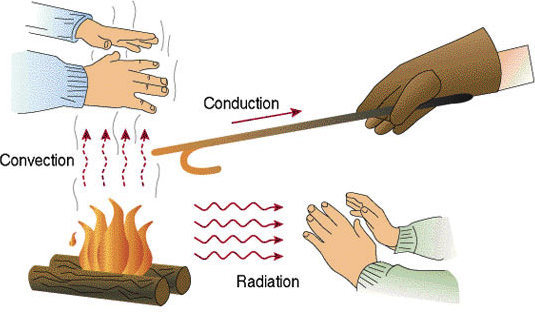
16. Match the words on the left to the description on the right. Fill in the letter for the description by the word you choose: ( /5 marks)

|  |  |
| --- | --- |
| Convection | A. The one "thing" that is changed |
| Expansion | B. Occurs when heat is removed from a material |
| Manipulated variables | C. The transfer of heat between substances that are in direct contact with each other |
| Kinetic Energy | D. The up and down movement of gases and liquids caused by heat transfer |
| Insulators | E. Are the same for each experiment |
| Conduction | F. Heat transfer that travels through space by electromagnetic waves |
| Controlled variables | G. Minimize heat transfer |
| Radiation | H. The energy of movement is the kind of energy the particles of matter have |
| Responding variables | I. Occurs when heat is added to a material |
| Contraction | J. That "thing" that responds to the change |

**SHORT ANSWERS: (Connects Marks)**

17. Fill in this diagram. Use terms that best describe what is happening in each part of the diagram. Provide a description of each term (A,B,C) and what is occurring in each part in regards to heat transfer:

( /3 marks)



18. You have been exploring various types of insulators and insulation materials throughout recent labs. Please try to explain the following through words and/or diagrams:

A) What makes a good insulator? ( /1 mark)

B) If you were designing a house or building-type structure in Calgary, which insulators would you put in the ceiling to reduce heat loss and why? ( /2.5 marks)